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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Masahiko Kubota

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02/11/2004

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EXAMINER

LIANG, LEONARD S

ART UNIT

PAPER NUMBER

2853

DATE MAILED: 02/11/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/878,946

Applicant(s)

KUBOTA ET AL.

Examiner

Leonard S Liang

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2853

AW

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 47-50, 53, 54, 56 and 58-63 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 53-54, 56, 58-63 is/are allowed.
- 6) ☒ Claim(s) 47-50 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 March 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 20.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Specification and Drawings

The lengthy specification and drawings have not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification and drawings.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 47-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Siwinski et al (US PgPub 20020015066) in view of Puukangas et al (US Pat 5735167) and Cheng (US Pat 5743138).

Siwinski et al discloses:

- {claim 47} A communication system in which a solid semiconductor element is used (figure 2; paragraph 15); a plurality of liquid containers, each of which contains a liquid, in which the respective solid semiconductor elements are disposed so that each solid semiconductor element floats in the liquid of one of the liquid containers, respectively (figure 2, reference 14a-d; paragraph 15, 38); information acquiring means for acquiring the information in the container (paragraph 15, 38); receiving means for receiving a signal from the outside (paragraph 38); information communicating means for transmitting the information to the outside when a predetermined response condition is satisfied (paragraph 38); outside communication means for bidirectionally communicating with the receiving means and the information communicating means of the solid semiconductor element (paragraph 38)

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- {claim 48} the response differs with each container (figure 2, reference 14a-d; 54a-d)
- {claim 49} the response condition comprises an electromagnetic induction frequency (paragraph 43)
- {claim 50} the response condition comprises a communication protocol (inherent)

Siwinski et al differs from the claimed invention in that it does not disclose:

- {claim 47} an oscillation circuit formed in the solid semiconductor element and provided with a conductor coil; an outside resonance circuit, disposed outside the plurality of liquid containers, for generating a power with respect to the oscillation circuit of the solid semiconductor element by electromagnetic induction; wherein a gravity center of the solid semiconductor element floating in the liquid is positioned below a center of the solid semiconductor element, and the floating solid semiconductor element rocks stably without rotating in the liquid, and wherein a metacenter of the solid semiconductor element is constantly positioned above the gravity center of the solid semiconductor element

Puukangas et al discloses:

- {claim 47} an oscillation circuit formed in the solid semiconductor element and provided with a conductor coil (column 2, lines 16-25; column 3, lines 43-55); an outside resonance circuit, disposed outside the plurality of liquid containers, for generating a power with respect to the oscillation circuit of the solid semiconductor element by electromagnetic induction (column 2, lines 12-26)

Cheng discloses:

- {claim 47} wherein a gravity center of the solid semiconductor element floating in the liquid is positioned below a center of the solid semiconductor element, and the floating solid semiconductor element rocks stably without rotating in the liquid, and wherein a metacenter of the solid semiconductor element is constantly positioned above the gravity center of the solid semiconductor element (column 1, lines 42-58)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the teachings of Puukangas et al into the invention of Siwinski et al. The motivation for the skilled artisan in doing so is to gain the benefit of being able to measure the resonance frequency from outside the container inductively without a lead-through to the container (column 2, lines 16-25).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the teachings of Cheng into the invention of Siwinski et al. The motivation for the skilled artisan in doing so is to gain the benefit of allowing the semiconductor element to float stably in the liquid.

Allowable Subject Matter

Claims 53-54, 56, and 58-63 are allowed.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Cowger et al (US Pat 5742308) discloses an ink jet printer cartridge refilling method and apparatus.

Childs et al (US Pat 6652080) discloses a re-circulating fluid delivery system.

Ochi et al (US Pat 6286921) discloses an ink cartridge of an ink jet printer and an ink jet printer including an ink cartridge.

Brooks et al (US Pat 5489925) discloses an ink jet printing system.

Okubo et al (JP Pat 62263059 A) discloses a liquid jet recorder.

Hamlin et al (US Pat 4940997) discloses an out-of-ink sensing method.

Robertson et al (US Pat 5751319) discloses a bulk ink delivery system and method.

Nakajima et al (US Pat 5929885) discloses ink consumption detection using a photosensor with a light-transmissive ink container.

Usui et al (US Pat 6470744) discloses a liquid detecting piezoelectric device, liquid container and mounting module member.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonard S Liang whose telephone number is (703) 305-4754. The examiner can normally be reached on 8:30-5 Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on (703) 308-4896. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Stephen D. Meier
Primary Examiner